

SEQUENCE LISTING

<110> Sebbel, Peter  
Dunant, Nicolas  
Bachmann, Martin  
Tissot, Alain  
Lechner, Franziska

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Ala Leu Ala Gly Phe Ala Thr Val Ala Gln Ala Cys Gly Gly Leu Thr 25  
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gac acc ctg cag gcg gaa acc gac cag gtg gaa gac gaa aaa tcc gcg 147  
Asp Thr Leu Gln Ala Glu Thr Asp Gln Val Glu Asp Glu Lys Ser Ala 40  
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ctg caa acc gaa atc gcg aac ctg ctg aaa gaa aaa gaa aag ctg gag 195  
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Thr Asp Gln Val Glu Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile Ala  
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Glu Lys Ser Ala Leu Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu Lys  
25 30 35  
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His Gly Gly Cys  
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Lys Thr Met Ala Cys Gly Gly Leu Thr Asp Thr Leu Gln Ala Glu Thr  
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 20 25 30  
 Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala His Gly  
 35 40 45  
 Gly Cys Gly Gly Ser Ala Ala Ala  
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Met Ala Thr Gly Ser Arg Thr Ser Leu Leu Leu Ala Phe Gly Leu Leu  
1 5 10 15





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Leu Leu Cys Leu Pro Trp Leu Gln Glu Gly Ser Ala Cys Gly Gly Leu
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acc gac acc ctg cag gcg gaa acc gac cag gtg gaa gac gaa aaa tcc 144
Thr Asp Thr Leu Gln Ala Glu Thr Asp Gln Val Glu Asp Glu Lys Ser
35 40 45

gcg ctg caa acc gaa atc gcg aac ctg ctg aaa gaa aaa gaa aag ctg 192
Ala Leu Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu
50 55 60

gag ttc atc ctg gcg gca cac ggt ggt tgc ggt ggt tct gcg gcc gct 240
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20 25 30

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35 40 45

Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe
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 ggt ccg aac gaa ctc ggc cgc ttt aaa cac acc gac gca tgc tgt cgc 96  
 Gly Pro Asn Glu Leu Gly Arg Phe Lys His Thr Asp Ala Cys Cys Arg  
 20 25 30  
 acc cag gac atg tgt ccg gac gtc atg tct gct ggt gaa tct aaa cac 144  
 Thr Gln Asp Met Cys Pro Asp Val Met Ser Ala Gly Glu Ser Lys His  
 35 40 45  
 ggg tta act aac acc gct tct cac acg cgt ctc agc tgc gac tgc gac 192  
 Gly Leu Thr Asn Thr Ala Ser His Thr Arg Leu Ser Cys Asp Cys Asp  
 50 55 60  
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 Asp Lys Phe Tyr Asp Cys Leu Lys Asn Ser Ala Asp Thr Ile Ser Ser  
 65 70 75 80  
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 Tyr Phe Val Gly Lys Met Tyr Phe Asn Leu Ile Asp Thr Lys Cys Tyr  
 85 90 95  
 aaa ctg gaa cac ccg gta acc ggc tgc ggc gaa cgt acc gaa ggt cgc 336  
 Lys Leu Glu His Pro Val Thr Gly Cys Gly Glu Arg Thr Glu Gly Arg  
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 50 55 60  
 Asp Lys Phe Tyr Asp Cys Leu Lys Asn Ser Ala Asp Thr Ile Ser Ser  
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 Tyr Phe Val Gly Lys Met Tyr Phe Asn Leu Ile Asp Thr Lys Cys Tyr  
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 Lys Leu Glu His Pro Val Thr Gly Cys Gly Glu Arg Thr Glu Gly Arg  
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00043675.360001

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Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile Ala Asn Leu Lys Glu
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Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala His Gly Gly Cys
 35          40          45
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Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30  
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
35 40 45  
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
50 55 60  
Leu Met Thr Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Thr

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Met	Gln	Leu	Phe	His	Leu	Cys	Leu	Ile	Ile	Ser	Cys	Ser	Cys	Pro	Thr	
1				5					10					15		
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile																
			20					25						30		
Asp	Pro	Tyr	Lys	Glu	Phe	Gly	Ala	Thr	Val	Glu	Leu	Leu	Ser	Phe	Leu	
		35					40					45				
Pro	Ser	Asp	Phe	Phe	Pro	Ser	Val	Arg	Asp	Leu	Leu	Asp	Thr	Ala	Ser	
		50				55						60				
Ala	Leu	Tyr	Arg	Glu	Ala	Leu	Glu	Ser	Pro	Glu	His	Cys	Ser	Pro	His	
					70					75					80	
His	Thr	Ala	Leu	Arg	Gln	Ala	Ile	Leu	Cys	Trp	Gly	Glu	Leu	Met	Thr	
			85						90					95		
Leu	Ala	Thr	Trp	Val	Gly	Gly	Asn	Leu	Glu	Asp	Pro	Ile	Ser	Arg	Asp	
			100					105					110			
Leu	Val	Val	Ser	Tyr	Val	Asn	Thr	Asn	Met	Gly	Leu	Lys	Phe	Arg	Gln	
		115					120					125				
Leu	Leu	Trp	Phe	His	Ile	Ser	Cys	Leu	Thr	Phe	Gly	Arg	Glu	Thr	Val	
		130				135					140					
Ile	Glu	Tyr	Leu	Val	Ser	Phe	Gly	Val	Trp	Ile	Arg	Thr	Pro	Pro	Ala	
					150					155					160	
Tyr	Arg	Pro	Pro	Asn	Ala	Pro	Ile	Leu	Ser	Thr	Leu	Pro	Glu	Thr	Thr	
				165					170					175		

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
 180 185 190  
 Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Ser Gln Ser Arg  
 195 200 205  
 Glu Ser Gln Cys  
 210

<210> 92  
 <211> 212  
 <212> PRT  
 <213> Hepatitis B virus

<400> 92  
 Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
 1 5 10 15  
 Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
 20 25 30  
 Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
 35 40 45  
 Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Asn Ala Ser  
 50 55 60  
 Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
 65 70 75 80  
 His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
 85 90 95  
 Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile Ser Arg Asp  
 100 105 110  
 Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
 115 120 125  
 Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
 130 135 140  
 Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
 145 150 155 160  
 Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
 165 170 175  
 Val Val Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
 180 185 190  
 Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
 195 200 205  
 Glu Ser Gln Cys  
 210

<210> 93  
 <211> 183  
 <212> PRT  
 <213> Hepatitis B virus

10000-919860



<400> 93

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Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1          5          10          15

Ser Phe Leu Pro Thr Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
          20          25          30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
          35          40          45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
          50          55          60

Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala
 65          70          75          80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
          85          90          95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
          100          105          110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
          115          120          125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
          130          135          140

Glu Thr Cys Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
          145          150          155          160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
          165          170          175

Gln Ser Arg Glu Ser Gln Cys
          180

```

<210> 94

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 94

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Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
 1          5          10          15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
          20          25          30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
          35          40          45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
          50          55          60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
 65          70          75          80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Thr
          85          90          95

Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Val Ser Arg Asp

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09846616 050401

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 96

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 96

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro Gln  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 97

<211> 212

<212> PRT

<213> Hepatitis B virus

104050-918880



65		70		75		80
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys						
	85			90		95
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg						
	100		105			110
Asp Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr						
	115		120		125	
Pro Pro Ala Tyr Arg Pro Ser Asn Ala Pro Ile Leu Ser Thr Leu Pro						
	130		135		140	
Glu Thr Cys Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr						
	145		150		155	160
Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser						
	165		170			175
Gln Ser Arg Glu Ser Gln Cys						
	180					

<210> 99

<211> 183

<212> PRT

<213> Hepatitis B virus

<400> 99

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
165 170 175

Gln Ser Arg Glu Ser Gln Cys  
180

<210> 100  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 100  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15  
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30  
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45  
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60  
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80  
His Thr Ala Leu Arg His Ala Ile Leu Cys Trp Gly Asp Leu Arg Thr  
85 90 95  
Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile Ser Arg Asp  
100 105 110  
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125  
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140  
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160  
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175  
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190  
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205  
Glu Ser Gln Cys  
210

<210> 101  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 101  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15  
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Asp Met Asp Ile

20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60

Ala Leu Phe Arg Asp Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Ala Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Gln Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Cys  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 102  
<211> 183  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> synthetic  
human Hepatitis B construct

<400> 102  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala  
65 70 75 80

0004861-050401

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
85 90 95  
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110  
Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125  
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140  
Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160  
Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175  
Gln Ser Arg Glu Ser Gln Cys  
180

<210> 103  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 103  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15  
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30  
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45  
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60  
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80  
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Ser  
85 90 95  
Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ile Ser Arg Asp  
100 105 110  
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125  
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140  
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160  
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175  
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

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35 40 45  
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp  
 50 55 60  
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala  
 65 70 75 80  
 Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
 85 90 95  
 Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
 100 105 110  
 Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
 115 120 125  
 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
 130 135 140  
 Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
 145 150 155 160  
 Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
 165 170 175  
 Gln Ser Arg Glu Ser Gln Cys  
 180

<210> 106

<211> 183

<212> PRT

<213> Hepatitis B virus

<400> 106

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
 1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
 20 25 30

Thr Ala Ser Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys  
 35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
 50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Ala Asn Leu Glu Asp Pro Ala  
 65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
 85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
 100 105 110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
 115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
 130 135 140

000001.050001

Glu Thr Thr Val Val Arg Arg Gly Arg Thr Pro Arg Arg Arg Thr  
145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175

Gln Ser Arg Glu Ser Gln Cys  
180

<210> 107

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 107

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60

Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 108

<211> 212

<212> PRT

<213> Hepatitis B virus

CCP4-2015-01-01

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 109

<211> 212

&lt;212&gt; PRT

<213> Hepatitis B virus

&lt;400&gt; 109

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Thr Cys Pro Thr  
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His

65		70		75		80
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr						
	85			90		95
Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp						
	100			105		110
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln						
	115			120		125
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val						
	130			135		140
Ile Glu Tyr Leu Val Ala Phe Gly Val Trp Ile Arg Thr Pro Pro Ala						
	145			150		155
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr						
	165			170		175
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro						
	180			185		190
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg						
	195			200		205
Glu Ser Gln Cys						
	210					
<210> 110						
<211> 212						
<212> PRT						
<213> Hepatitis B virus						
<400> 110						
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr						
	1		5		10	15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile						
	20			25		30
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu						
	35			40		45
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser						
	50			55		60
Ala Leu Tyr Arg Glu Ala Phe Glu Cys Ser Glu His Cys Ser Pro His						
	65			70		75
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr						
	85			90		95
Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile Ser Arg Asp						
	100			105		110
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln						
	115			120		125
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val						
	130			135		140

104050.5.1984222



<400> 113  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr

```
<210> 114
<211> 212
<212> PRT
<213> Hepatitis B virus
```

```

400> 114
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
      1              5              10              15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
      20              25              30
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
      35              40              45
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
      50              55              60
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
      65              70              75              80

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His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Pro Gln Cys  
210

<210> 115  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 115  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Ser Thr Ala Ser  
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

104050.91934860

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
 165 170 175  
 Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
 180 185 190  
 Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
 195 200 205  
 Glu Ser Gln Cys  
 210

<210> 116  
 <211> 212  
 <212> PRT  
 <213> Hepatitis B virus

<400> 116  
 Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
 1 5 10 15  
 Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
 20 25 30  
 Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
 35 40 45  
 Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
 50 55 60  
 Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
 65 70 75 80  
 His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
 85 90 95  
 Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
 100 105 110  
 Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
 115 120 125  
 Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
 130 135 140  
 Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
 145 150 155 160  
 Tyr Arg Pro Pro Asn Ala Pro Ile Leu Leu Thr Leu Pro Glu Thr Thr  
 165 170 175  
 Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
 180 185 190  
 Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
 195 200 205  
 Glu Ser Gln Cys  
 210

<210> 117

<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 117  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15  
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30  
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45  
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60  
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80  
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Thr  
85 90 95  
Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110  
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Lys Gln  
115 120 125  
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140  
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160  
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175  
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190  
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205  
Glu Ser Gln Cys  
210

<210> 118  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 118  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15  
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30  
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Ala	Ser	Asp	Phe	Phe	Pro	Ser	Val	Arg	Asp	Leu	Leu	Asp	Thr	Ala	Ala
65	Leu	Tyr	Arg	Asp	Ala	Leu	Glu	Ser	Pro	Glu	His	Cys	Ser	Pro	His
His	Thr	Ala	Leu	Arg	Gln	Ala	Ile	Leu	Cys	Trp	Gly	Glu	Leu	Met	Thr
Leu	Ala	Thr	Trp	Val	Gly	Thr	Asn	Leu	Glu	Asp	Pro	Ala	Ser	Arg	Asp
Leu	Val	Val	Ser	Tyr	Val	Asn	Thr	Asn	Met	Gly	Leu	Lys	Phe	Arg	Gln
Leu	Leu	Trp	Phe	His	Ile	Ser	Cys	Leu	Thr	Phe	Gly	Arg	Glu	Thr	Val
Leu	Glu	Tyr	Leu	Val	Ser	Phe	Gly	Val	Trp	Ile	Arg	Thr	Pro	Pro	Ala
Tyr	Arg	Pro	Pro	Asn	Ala	Pro	Ile	Leu	Ser	Thr	Leu	Pro	Glu	Thr	Thr
Val	Val	Arg	Arg	Arg	Gly	Arg	Ser	Pro	Arg	Arg	Arg	Thr	Pro	Ser	Pro
Arg	Arg	Arg	Arg	Ser	Gln	Ser	Pro	Arg	Arg	Arg	Arg	Ser	Gln	Ser	Arg
Glu	Ser	Gln	Cys												
<210>	119														
<211>	183														
<212>	PRT														
<213>	Hepatitis B virus														
<400>	119														
Met	Asp	Ile	Asp	Pro	Tyr	Lys	Glu	Phe	Gly	Ala	Ser	Met	Glu	Leu	Leu
Ser	Phe	Leu	Pro	Ser	Asp	Phe	Tyr	Pro	Ser	Val	Arg	Asp	Leu	Leu	Asp
Thr	Ala	Ser	Ala	Leu	Tyr	Arg	Glu	Ala	Leu	Glu	Ser	Pro	Glu	His	Cys
Thr	Pro	His	His	Thr	Ala	Leu	Arg	Gln	Ala	Ile	Leu	Cys	Trp	Gly	Glu
Leu	Met	Thr	Leu	Ala	Thr	Trp	Val	Gly	Gly	Asn	Leu	Gln	Asp	Pro	Thr
Ser	Arg	Asp	Leu	Val	Val	Ser	Tyr	Val	Asn	Thr	Asn	Met	Gly	Leu	Lys
Phe	Arg	Gln	Leu	Leu	Trp	Phe	His	Val	Ser	Cys	Leu	Thr	Phe	Gly	Arg
Glu	Thr	Val	Val	Glu	Tyr	Leu	Val	Ser	Phe	Gly	Val	Trp	Ile	Arg	Thr

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr

1	5	10	15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile	20	25	30
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu	35	40	45
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser	50	55	60
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His	65	70	75
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Thr Thr	85	90	95
Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp	100	105	110
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln	115	120	125
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val	130	135	140
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala	145	150	155
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr	165	170	175
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro	180	185	190
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg	195	200	205
Glu Ser Gln Cys	210		

<210> 122  
 <211> 212  
 <212> PRT  
 <213> Hepatitis B virus

1	5	10	15
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr	5	10	15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile	20	25	30
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu	35	40	45
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser	50	55	60
Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys Ser Pro His	65	70	75

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160

Pro Ser Pro Ala Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
 165 170 175  
 Gln Ser Arg Glu Ser Gln Cys  
 180

<210> 124  
 <211> 212  
 <212> PRT  
 <213> Hepatitis B virus

<400> 124  
 Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
 1 5 10 15  
 Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
 20 25 30  
 Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
 35 40 45  
 Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
 50 55 60  
 Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
 65 70 75 80  
 His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Asn  
 85 90 95  
 Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Val Ser Arg Asp  
 100 105 110  
 Leu Val Val Gly Tyr Val Asn Thr Thr Val Gly Leu Lys Phe Arg Gln  
 115 120 125  
 Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
 130 135 140  
 Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
 145 150 155 160  
 Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
 165 170 175  
 Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
 180 185 190  
 Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
 195 200 205  
 Glu Ser Gln Cys  
 210

<210> 125  
 <211> 183  
 <212> PRT  
 <213> Hepatitis B virus

<400> 125  
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu



```
<210> 126
<211> 212
<212> PRT
<213> Hepatitis B virus
```

Met	Gln	Leu	Phe	His	Leu	Cys	Leu	Ile	Ile	Ser	Cys	Ser	Cys	Pro	Thr
1				5					10					15	
Val	Gln	Ala	Ser	Lys	Leu	Cys	Leu	Gly	Trp	Leu	Trp	Gly	Met	Asp	Ile
			20					25					30		
Asp	Pro	Tyr	Lys	Glu	Phe	Gly	Ala	Thr	Val	Glu	Leu	Leu	Ser	Phe	Leu
		35					40					45			
Pro	Ser	Asp	Phe	Phe	Pro	Ser	Val	Arg	Ala	Leu	Leu	Asp	Thr	Ala	Ser
	50					55					60				
Ala	Leu	Tyr	Arg	Glu	Ala	Leu	Glu	Ser	Pro	Glu	His	Cys	Ser	Pro	His
	65				70					75					80
His	Thr	Ala	Leu	Arg	Gln	Ala	Ile	Leu	Cys	Trp	Gly	Glu	Leu	Met	Thr
				85					90					95	
Leu	Ala	Thr	Trp	Val	Gly	Val	Asn	Leu	Glu	Asp	Pro	Ala	Ser	Arg	Asp
			100					105					110		

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
 115 120 125  
 Ile Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
 130 135 140  
 Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
 145 150 155 160  
 Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
 165 170 175  
 Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
 180 185 190  
 Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
 195 200 205  
 Glu Ser Gln Cys  
 210

<210> 127  
 <211> 212  
 <212> PRT  
 <213> Hepatitis B virus

<400> 127  
 Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
 1 5 10 15  
 Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
 20 25 30  
 Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
 35 40 45  
 Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
 50 55 60  
 Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
 65 70 75 80  
 His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Thr  
 85 90 95  
 Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Thr Arg Asp  
 100 105 110  
 Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys Phe Arg Gln  
 115 120 125  
 Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
 130 135 140  
 Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
 145 150 155 160  
 Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
 165 170 175  
 Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
 180 185 190

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<400> 129  
Met Gln Leu Phe His Leu Cys Leu Val Ile Ser Cys Ser Cys Pro Thr

1	5	10	15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile	20	25	30
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu	35	40	45
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ala	50	55	60
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His	65	70	75
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr	85	90	95
Leu Ala Thr Trp Val Gly Asn Asn Leu Glu Asp Pro Ala Ser Arg Asp	100	105	110
Leu Val Val Asn Tyr Val Asn Thr Asn Met Gly Leu Lys Ile Arg Gln	115	120	125
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val	130	135	140
Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala	145	150	155
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr	165	170	175
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro	180	185	190
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg	195	200	205
Glu Ser Gln Cys	210		

<210> 130  
 <211> 212  
 <212> PRT  
 <213> Hepatitis B virus

<400> 130
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45
Pro Ser Ala Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
50 55 60
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 131  
<211> 183  
<212> PRT  
<213> Hepatitis B virus

<400> 131  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30

Thr Ala Ala Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Asn Asn Leu Glu Asp Pro Ala  
65 70 75 80

Ser Arg Asp Leu Val Val Asn Tyr Val Asn Thr Asn Met Gly Leu Lys  
85 90 95

Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110

Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140

Glu Thr Thr Val Val Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160

00000-00000



tat aaa gaa ttt gga gct act gtg gag tta ctc tcg ttt ttg cct tct 1963

Tyr	Lys	Glu	Phe	Gly	Ala	Thr	Val	Glu	Leu	Leu	Ser	Phe	Leu	Pro	Ser		
				10					15					20			
gac	ttc	ttt	cct	tcc	gtc	aga	gat	ctc	cta	gac	acc	gcc	tca	gct	ctg	2011	
Asp	Phe	Phe	Pro	Ser	Val	Arg	Asp	Leu	Leu	Asp	Thr	Ala	Ser	Ala	Leu		
			25					30				35					
tat	cga	gaa	gcc	tta	gag	tct	cct	gag	cat	tgc	tca	cct	cac	cat	act	2059	
Tyr	Arg	Glu	Ala	Leu	Glu	Ser	Pro	Glu	His	Cys	Ser	Pro	His	His	Thr		
		40					45					50					
gca	ctc	agg	caa	gcc	att	ctc	tgc	tgg	ggg	gaa	ttg	atg	act	cta	gct	2107	
Ala	Leu	Arg	Gln	Ala	Ile	Leu	Cys	Trp	Gly	Glu	Leu	Met	Thr	Leu	Ala		
		55				60					65						
acc	tgg	gtg	ggt	aat	aat	ttg	gaa	gat	cca	gca	tcc	agg	gat	cta	gta	2155	
Thr	Trp	Val	Gly	Asn	Asn	Leu	Glu	Asp	Pro	Ala	Ser	Arg	Asp	Leu	Val		
		70			75					80					85		
gtc	aat	tat	gtt	aat	act	aac	atg	ggg	tta	aag	atc	agg	caa	cta	ttg	2203	
Val	Asn	Tyr	Val	Asn	Thr	Asn	Met	Gly	Leu	Lys	Ile	Arg	Gln	Val	Leu		
				90					95					100			
tgg	ttt	cat	ata	tct	tgc	ctt	act	ttt	gga	aga	gag	act	gta	ctt	gaa	2251	
Trp	Phe	His	Ile	Ser	Cys	Leu	Thr	Phe	Gly	Arg	Glu	Thr	Val	Leu	Glu		
			105					110					115				
tat	ttg	gtc	tct	ttc	gga	gtg	tgg	att	cgc	act	cct	cca	gcc	tat	aga	2299	
Tyr	Leu	Val	Ser	Phe	Gly	Val	Trp	Ile	Arg	Thr	Pro	Pro	Ala	Tyr	Arg		
		120					125					130					
cca	cca	aat	gcc	cct	atc	tta	tca	aca	ctt	ccg	gaa	act	act	gtt	gtt	2347	
Pro	Pro	Asn	Ala	Pro	Ile	Leu	Ser	Thr	Leu	Pro	Glu	Thr	Thr	Val	Val		
		135				140					145						
aga	cga	cgg	gac	cga	ggc	agg	toc	cct	aga	aga	aga	act	ccc	tcg	cct	2395	
Arg	Arg	Arg	Asp	Arg	Gly	Arg	Ser	Pro	Arg	Arg	Arg	Thr	Pro	Ser	Pro		
		150			155					160				165			
cgc	aga	cgc	aga	tct	caa	tcg	ccg	cgt	cgc	aga	aga	tct	caa	tct	ccg	2443	
Arg	Arg	Arg	Arg	Ser	Gln	Ser	Pro	Arg	Arg	Arg	Arg	Ser	Gln	Ser	Arg		
				170					175					180			
gaa	tct	caa	tgt	tag	tattccttgg	actcataagg	tgggaaactt	tactgggctt								2498	
Glu	Ser	Gln	Cys														
			185														
tattcctcta	cagtaacctat	ctttaatcct	gaatggcaaa	ctccttccct	tctaagatt											2558	
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caaaccagac	attatttaca	tactctttgg	aaggctggta	ttctatataa	gaggaaaacc											2798	
acacgtagcg	catcattttg	cgggtcacca	tattcttggg	aaaaagagct	acagcatggg											2858	
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gggattcttt	cccgatcctc	agttggaccc	tgcatctgga	gccaactcaa	acaatccaga											2978	



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 attcggggcca gggtccaccc ctccacacgg cggtattttt ggggtggagcc ctccaggetca 3098  
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 gaa 3221

<210> 134  
 <211> 185  
 <212> PRT  
 <213> Hepatitis B virus

<400> 134  
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
 1 5 10 15  
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
 20 25 30  
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
 35 40 45  
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
 50 55 60  
 Leu Met Thr Leu Ala Thr Trp Val Gly Asn Asn Leu Glu Asp Pro Ala  
 65 70 75 80  
 Ser Arg Asp Leu Val Val Asn Tyr Val Asn Thr Asn Met Gly Leu Lys  
 85 90 95  
 Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
 100 105 110  
 Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
 115 120 125  
 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
 130 135 140  
 Glu Thr Thr Val Val Arg Arg Arg Asp Arg Gly Arg Ser Pro Arg Arg  
 145 150 155 160  
 Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg  
 165 170 175  
 Arg Ser Gln Ser Arg Glu Ser Gln Cys  
 180 185

<210> 135  
 <211> 188  
 <212> PRT  
 <213> Woodchuck hepatitis B virus

<400> 135  
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ser Ser Tyr Gln Leu Leu  
 1 5 10 15  
 Asn Phe Leu Pro Leu Asp Phe Phe Pro Asp Leu Asn Ala Leu Val Asp  
 20 25 30  
 Thr Ala Thr Ala Leu Tyr Glu Glu Glu Leu Thr Gly Arg Glu His Cys  
 35 40 45  
 Ser Pro His His Thr Ala Ile Arg Gln Ala Leu Val Cys Trp Asp Glu  
 50 55 60  
 Leu Thr Lys Leu Ile Ala Trp Met Ser Ser Asn Ile Thr Ser Glu Gln





Ser Pro Ser Pro Arg Lys  
260

<210> 138  
<211> 305  
<212> PRT  
<213> Duck hepatitis B virus

<400> 138  
Met Trp Asp Leu Arg Leu His Pro Ser Pro Phe Gly Ala Ala Cys Gln  
1 5 10 15  
Gly Ile Phe Thr Ser Ser Leu Leu Leu Phe Leu Val Thr Val Pro Leu  
20 25 30  
Val Cys Thr Ile Val Tyr Asp Ser Cys Leu Cys Met Asp Ile Asn Ala  
35 40 45  
Ser Arg Ala Leu Ala Asn Val Tyr Asp Leu Pro Asp Asp Phe Phe Pro  
50 55 60  
Lys Ile Asp Asp Leu Val Arg Asp Ala Lys Asp Ala Leu Glu Pro Tyr  
65 70 75  
Trp Arg Asn Asp Ser Ile Lys Lys His Val Leu Ile Ala Thr His Phe  
85 90 95  
Val Asp Leu Ile Glu Asp Phe Trp Gln Thr Thr Gln Gly Met His Glu  
100 105 110  
Ile Ala Glu Ala Leu Arg Ala Ile Ile Pro Ala Thr Thr Ala Pro Val  
115 120 125  
Pro Gln Gly Phe Leu Val Gln His Glu Glu Ala Glu Glu Ile Pro Leu  
130 135 140  
Gly Glu Leu Phe Arg Tyr Gln Glu Glu Arg Leu Thr Asn Phe Gln Pro  
145 150 155 160  
Asp Tyr Pro Val Thr Ala Arg Ile His Ala His Leu Lys Ala Tyr Ala  
165 170 175  
Lys Ile Asn Glu Glu Ser Leu Asp Arg Ala Arg Arg Leu Leu Trp Trp  
180 185 190  
His Tyr Asn Cys Leu Leu Trp Gly Glu Pro Asn Val Thr Asn Tyr Ile  
195 200 205  
Ser Arg Leu Arg Thr Trp Leu Ser Thr Pro Glu Lys Tyr Arg Gly Lys  
210 215 220  
Asp Ala Pro Thr Ile Glu Ala Ile Thr Arg Pro Ile Gln Val Ala Gln  
225 230 235 240  
Gly Gly Arg Asn Lys Thr Gln Gly Val Arg Lys Ser Arg Gly Leu Glu  
245 250 255  
Pro Arg Arg Arg Arg Val Lys Thr Thr Ile Val Tyr Gly Arg Arg Arg  
260 265 270  
Ser Lys Ser Arg Glu Arg Arg Ala Pro Thr Pro Gln Arg Ala Gly Ser  
275 280 285

Pro Leu Pro Arg Thr Ser Arg Asp His His Arg Ser Pro Ser Pro Arg  
290 295 300

Glu  
305

<210> 139  
<211> 212  
<212> PRT  
<213> Haemophilus influenzae

<400> 139  
Met Lys Lys Thr Leu Leu Gly Ser Leu Ile Leu Leu Ala Phe Ala Gly  
1 5 10 15  
Asn Val Gln Ala Ala Asn Ala Asp Thr Ser Gly Thr Val Thr Phe  
20 25 30  
Phe Gly Lys Val Val Glu Asn Thr Cys Gln Val Asn Gln Asp Ser Glu  
35 40 45  
Tyr Glu Cys Asn Leu Asn Asp Val Gly Lys Asn His Leu Ser Gln Gln  
50 55 60  
Gly Tyr Thr Ala Met Gln Thr Pro Phe Thr Ile Thr Leu Glu Asn Cys  
65 70 75 80  
Asn Val Thr Thr Thr Asn Asn Lys Pro Lys Ala Thr Lys Val Gly Val  
85 90 95  
Tyr Phe Tyr Ser Trp Glu Ile Ala Asp Lys Asp Asn Lys Tyr Thr Leu  
100 105 110  
Lys Asn Ile Lys Glu Asn Thr Gly Thr Asn Asp Ser Ala Asn Lys Val  
115 120 125  
Asn Ile Gln Leu Leu Glu Asp Asn Gly Thr Ala Glu Ile Lys Val Val  
130 135 140  
Gly Lys Thr Thr Thr Asp Phe Thr Ser Glu Asn His Asn Gly Ala Gly  
145 150 155 160  
Ala Asp Pro Val Ala Thr Asn Lys His Ile Ser Ser Leu Thr Pro Leu  
165 170 175  
Asn Asn Gln Asn Ser Ile Asn Leu His Tyr Ile Ala Gln Tyr Tyr Ala  
180 185 190  
Thr Gly Val Ala Glu Ala Gly Lys Val Pro Ser Ser Val Asn Ser Gln  
195 200 205  
Ile Ala Tyr Glu  
210

<210> 140  
<211> 139  
<212> PRT  
<213> Pseudomonas stutzeri

<400> 140  
Met Lys Ala Gln Met Gln Lys Gly Phe Thr Leu Ile Glu Leu Met Ile

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1		5		10		15									
Val	Val	Ala	Ile	Ile	Gly	Ile	Leu	Ala	Ala	Ile	Ala	Leu	Pro	Ala	Tyr
		20					25						30		
Gln	Asp	Tyr	Thr	Val	Arg	Ser	Asn	Ala	Ala	Ala	Ala	Leu	Ala	Glu	Ile
		35					40					45			
Thr	Pro	Gly	Lys	Ile	Gly	Phe	Glu	Gln	Ala	Ile	Asn	Glu	Gly	Lys	Thr
		50				55					60				
Pro	Ser	Leu	Thr	Ser	Thr	Asp	Glu	Gly	Tyr	Ile	Gly	Ile	Thr	Asp	Ser
65					70					75					80
Thr	Ser	Tyr	Cys	Asp	Val	Asp	Leu	Asp	Thr	Ala	Ala	Asp	Gly	His	Ile
			85						90					95	
Glu	Cys	Thr	Ala	Lys	Gly	Gly	Asn	Ala	Gly	Lys	Phe	Asp	Gly	Lys	Thr
			100				105						110		
Ile	Thr	Leu	Asn	Arg	Thr	Ala	Asp	Gly	Glu	Trp	Ser	Cys	Ala	Ser	Thr
		115					120					125			
Leu	Asp	Ala	Lys	Tyr	Lys	Pro	Gly	Lys	Cys	Ser					
	130					135									

<210> 141  
 <211> 59  
 <212> PRT  
 <213> *Caulobacter crescentus*

<400> 141
Met Thr Lys Phe Val Thr Arg Phe Leu Lys Asp Glu Ser Gly Ala Thr
1 5 10 15
Ala Ile Glu Tyr Gly Leu Ile Val Ala Leu Ile Ala Val Val Ile Val
20 25 30
Thr Ala Val Thr Thr Leu Gly Thr Asn Leu Arg Thr Ala Phe Thr Lys
35 40 45
Ala Gly Ala Ala Val Ser Thr Ala Ala Gly Thr
50 55

<210> 142  
 <211> 173  
 <212> PRT  
 <213> *Escherichia coli*

<400> 142
Met Ala Val Val Ser Phe Gly Val Asn Ala Ala Pro Thr Ile Pro Gln
1 5 10 15
Gly Gln Gly Lys Val Thr Phe Asn Gly Thr Val Val Asp Ala Pro Cys
20 25 30
Ser Ile Ser Gln Lys Ser Ala Asp Gln Ser Ile Asp Phe Gly Gln Leu
35 40 45
Ser Lys Ser Phe Leu Glu Ala Gly Gly Val Ser Lys Pro Met Asp Leu
50 55 60

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<210> 143
<211> 173
<212> PRT
<213> Escherichia coli

<400> 143
Met Ala Val Val Ser Phe Gly Val Asn Ala Ala Pro Thr Ile Pro Gln
  1                               10                      15
Gly Gln Gly Lys Val Thr Phe Asn Gly Thr Val Val Asp Ala Pro Cys
                               20                      25                      30
Ser Ile Ser Gln Lys Ser Ala Asp Gln Ser Ile Asp Phe Gly Gln Leu
                               35                      40                      45
Ser Lys Ser Phe Leu Glu Ala Gly Gly Val Ser Lys Pro Met Asp Leu
                               50                      55                      60
Asp Ile Glu Leu Val Asn Cys Asp Ile Thr Ala Phe Lys Gly Gly Asn
  65                               70                      75                      80
Gly Ala Gln Lys Gly Thr Val Lys Leu Ala Phe Thr Gly Pro Ile Val
                               85                      90                      95
Asn Gly His Ser Asp Glu Leu Asp Thr Asn Gly Gly Thr Gly Thr Ala
                               100                     105                     110
Ile Val Val Gln Gly Ala Gly Lys Asn Val Val Phe Asp Gly Ser Glu
                               115                     120                     125
Gly Asp Ala Asn Thr Leu Lys Asp Gly Glu Asn Val Leu His Tyr Thr
                               130                     135                     140
Ala Val Val Lys Lys Ser Ser Ala Val Gly Ala Ala Val Thr Glu Gly
  145                               150                     155                     160
Ala Phe Ser Ala Val Ala Asn Phe Asn Leu Thr Tyr Gln
                               165                     170

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$\langle 210 \rangle$	144
$\langle 211 \rangle$	172

<212> PRT  
<213> Escherichia coli

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<400> 144
Met Ala Val Val Ser Phe Gly Val Asn Ala Ala Pro Thr Thr Pro Gln
 1          5          10          15
Gly Gln Gly Arg Val Thr Phe Asn Gly Thr Val Val Asp Ala Pro Cys
          20          25          30
Ser Ile Ser Gln Lys Ser Ala Asp Gln Ser Ile Asp Phe Gly Gln Leu
          35          40          45
Ser Lys Ser Phe Leu Ala Asn Asp Gly Gln Ser Lys Pro Met Asn Leu
          50          55          60
Asp Ile Glu Leu Val Asn Cys Asp Ile Thr Ala Phe Lys Asn Gly Asn
          65          70          75          80
Ala Lys Thr Gly Ser Val Lys Leu Ala Phe Thr Gly Pro Thr Val Ser
          85          90          95
Gly His Pro Ser Glu Leu Ala Thr Asn Gly Gly Pro Gly Thr Ala Ile
          100          105          110
Met Ile Gln Ala Ala Gly Lys Asn Val Pro Phe Asp Gly Thr Glu Gly
          115          120          125
Asp Pro Asn Leu Leu Lys Asp Gly Asp Asn Val Leu His Tyr Thr Thr
          130          135          140
Val Gly Lys Lys Ser Ser Asp Gly Asn Ala Gln Ile Thr Glu Gly Ala
          145          150          155          160
Phe Ser Gly Val Ala Thr Phe Asn Leu Ser Tyr Gln
          165          170

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<210> 145  
<211> 853  
<212> DNA  
<213> Escherichia coli

<220>  
<221> CDS  
<222> (281)..(829)

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<400> 145
acgtttctgt ggctgcagcg atcttctctca ttctttctctc caaaaaccac ctcatgcaat 60
ataaacatct ataaataaag ataacaataa gaatattaag ccaacaataa aactgaaaaa 120
gtttgtcoog gatgctttac ctctatgagt caaaatggcc ccaatgttct atcttttggg 180
ggaaaactgtg cagtgtttgc agtcaaaact gttgacaaaac aaagtgtaca gaacgactgc 240
ccatgtcgat ttagaaatag ttttttgaaa ggaaagcagc atg aaa att aaa act 295
                               Met Lys Ile Lys Thr
                               1          5
ctg gca atc gtt gtt ctg tcg gct ctg tcc ctc agt tct acg acg gct 343
Leu Ala Ile Val Val Leu Ser Ala Leu Ser Leu Ser Ser Thr Thr Ala
          10          15          20

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<210> 146  
<211> 182  
<212> PRT  
<213> Escherichia coli

<400> 146  
Met Lys Ile Lys Thr Leu Ala Ile Val Val Leu Ser Ala Leu Ser Leu  
1 5 10 15  
Ser Ser Thr Thr Ala Leu Ala Ala Ala Thr Thr Val Asn Gly Gly Thr  
20 25 30  
Val His Phe Lys Gly Glu Val Val Asn Ala Ala Cys Ala Val Asp Ala  
35 40 45  
Gly Ser Val Asp Gln Thr Val Gln Leu Gly Gln Val Arg Thr Ala Ser  
50 55 60  
Leu Ala Gln Glu Gly Ala Thr Ser Ser Ala Val Gly Phe Asn Ile Gln  
65 70 75  
Leu Asn Asp Cys Asp Thr Asn Val Ala Ser Lys Ala Ala Val Ala Phe  
85 90 95  
Leu Gly Thr Ala Ile Asp Ala Gly His Thr Asn Val Leu Ala Leu Gln

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<210> 147
<211> 11
<212> PRT
<213> Artificial Sequence
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<400> 147  
Cys Gly Gly Asp Tyr Lys Asp Asp Asp Asp Lys  
1 5 10

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<220>
<223> primer
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<210> 149
<211> 37
<212> DNA
<213> Artificial Sequence
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<400> 149  
gtgcagtatg gtgaggtgag gaatgctcag gagactc 37

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<220>
<223> primer
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<400> 150  
gsgtctcctg agcattcctc acctcaccat actgcac 37

<210> 151  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer

<400> 151  
cttccaaaag tgagggaaga aatgtgaaac cac

33

<210> 152  
<211> 47  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer

<400> 152  
cgcgtcccaa gcttctaaac aacagtagtc tccggaagcg ttgatag

47

<210> 153  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer

<400> 153  
gtggtttcac atttcttccc tcacttttgg aag

33

<210> 154  
<211> 281  
<212> PRT  
<213> *Saccharomyces cerevisiae*

<400> 154  
Met Ser Glu Tyr Gln Pro Ser Leu Phe Ala Leu Asn Pro Met Gly Phe  
1 5 10  
Ser Pro Leu Asp Gly Ser Lys Ser Thr Asn Glu Asn Val Ser Ala Ser  
20 25 30  
Thr Ser Thr Ala Lys Pro Met Val Gly Gln Leu Ile Phe Asp Lys Phe  
35 40 45  
Ile Lys Thr Glu Glu Asp Pro Ile Ile Lys Gln Asp Thr Pro Ser Asn  
50 55 60  
Leu Asp Phe Asp Phe Ala Leu Pro Gln Thr Ala Thr Ala Pro Asp Ala  
65 70 75 80  
Lys Thr Val Leu Pro Ile Pro Glu Leu Asp Asp Ala Val Val Glu Ser  
85 90 95  
Phe Phe Ser Ser Ser Thr Asp Ser Thr Pro Met Phe Glu Tyr Glu Asn  
100 105 110

Leu	Glu	Asp	Asn	Ser	Lys	Glu	Trp	Thr	Ser	Leu	Phe	Asp	Asn	Asp	Ile
Pro	Val	Thr	Thr	Asp	Asp	Val	Ser	Leu	Ala	Asp	Lys	Ala	Ile	Glu	Ser
Thr	Glu	Glu	Val	Ser	Leu	Val	Pro	Ser	Asn	Leu	Glu	Val	Ser	Thr	Thr
Ser	Phe	Leu	Pro	Thr	Pro	Val	Leu	Glu	Asp	Ala	Lys	Leu	Thr	Gln	Thr
Arg	Lys	Val	Lys	Lys	Pro	Asn	Ser	Val	Val	Lys	Lys	Ser	His	His	Val
Gly	Lys	Asp	Asp	Glu	Ser	Arg	Leu	Asp	His	Leu	Gly	Val	Val	Ala	Tyr
Asn	Arg	Lys	Gln	Arg	Ser	Ile	Pro	Leu	Ser	Pro	Ile	Val	Pro	Glu	Ser
Ser	Asp	Pro	Ala	Ala	Leu	Lys	Arg	Ala	Arg	Asn	Thr	Glu	Ala	Ala	Arg
Arg	Ser	Arg	Ala	Arg	Lys	Leu	Gln	Arg	Met	Lys	Gln	Leu	Glu	Asp	Lys
Val	Glu	Glu	Leu	Leu	Ser	Lys	Asn	Tyr	His	Leu	Glu	Asn	Glu	Val	Ala
Arg	Leu	Lys	Lys	Leu	Val	Gly	Glu	Arg							
<210> 155															
<211> 181															
<212> PRT															
<213> Escherichia coli															
<400> 155															
Met	Lys	Ile	Lys	Thr	Leu	Ala	Ile	Val	Val	Leu	Ser	Ala	Leu	Ser	Leu
Ser	Ser	Thr	Ala	Ala	Leu	Ala	Ala	Thr	Thr	Val	Asn	Gly	Thr		
Val	His	Phe	Lys	Gly	Glu	Val	Val	Asn	Ala	Ala	Cys	Ala	Val	Asp	Ala
Gly	Ser	Val	Asp	Gln	Thr	Val	Gln	Leu	Gly	Gln	Val	Arg	Thr	Ala	Ser
Leu	Ala	Gln	Glu	Gly	Ala	Thr	Ser	Ser	Ala	Val	Gly	Phe	Asn	Ile	Gln
Leu	Asn	Asp	Cys	Asp	Thr	Asn	Val	Ala	Ser	Lys	Ala	Ala	Val	Ala	Phe
Leu	Gly	Thr	Ala	Ile	Asp	Ala	Gly	His	Thr	Asn	Val	Leu	Ala	Leu	Gln
Ser	Ser	Ala	Ala	Gly	Ser	Ala	Thr	Asn	Val	Gly	Val	Gln	Ile	Leu	Asp

Arg Thr Gly Ala Ala Leu Thr Leu Asp Gly Ala Thr Phe Ser Ser Glu  
130 135 140

Thr Thr Leu Asn Asn Gly Thr Asn Thr Ile Pro Phe Gln Ala Arg Tyr  
145 150 155 160

Phe Ala Gly Ala Ala Thr Pro Gly Ala Ala Asn Ala Asp Ala Thr Phe  
165 170 175

Lys Val Gln Tyr Gln  
180

<210> 156  
<211> 447  
<212> DNA  
<213> Hepatitis B

<220>  
<221> CDS  
<222> (1)..(447)

<400> 156  
atg gac att gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc 48  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15

tcg ttt ttg cct tct gac ttc ttt cct tcc gta cga gat ctt cta gat 96  
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30

acc gcc gca gct ctg tat cgg gat gcc tta gag tct cct gag cat tgt 144  
Thr Ala Ala Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys  
35 40 45

tca cct cac cat act gca ctc agg caa gca att ott tgc tgg gga gac 192  
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp  
50 55 60

tta atg act cta gct acc tgg gtg ggt act aat tta gaa gat cca gca 240  
Leu Met Thr Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Pro Ala  
65 70 75 80

tct agg gac cta gta gtc agt tat gtc aac act aat gtg ggc cta aag 288  
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys  
85 90 95

ttc aga caa tta ttg tgg ttt cac att tct tgt ctc act ttt gga aga 336  
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110

gaa acg gtt cta gag tat ttg gtc tct ttt gga gtg tgg att cgc act 384  
Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125

cct cca gcc tat aga cca cca aat gcc cct atc cta tca acg ctt cgg 432  
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140

gag act act gtt gtt 447  
Glu Thr Thr Val Val  
145

00046615.057401

400> 158  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu  
1 5 10 15  
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30  
Thr Ala Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys  
35 40 45  
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp  
50 55 60  
Leu Met Thr Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Gly Gly  
65 70 75 80  
Lys Gly Gly Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Val  
85 90 95  
Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr

100	105	110
Phe Gly Arg Glu Thr Val Leu	Glu Tyr Leu Val Ser Phe Gly Val Trp	
115	120	125
Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser		
130	135	140
Thr Leu Pro Glu Thr Thr Val Val		
145	150	

<210> 159  
 <211> 56  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Oligonucleotide

<400> 159  
 tagatgatta cgccaagcgt ataatagaaa tagttttttg aaaggaaagc agcatg 56

<210> 160  
 <211> 45  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Oligonucleotide

<400> 160  
 gtcaaaggcc ttgtcgagct tattccatta cgcccgatcat ttgtg 45

<210> 161  
 <211> 4623  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> pFIMAIC

<400> 161  
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 ttctaaatc attcaaatat gtatccgctc atgagacaat aacctgata aatgcttcaa 180  
 taatatgaa aaaggaagag tatgagtatt caacatttcc gtgtgcacct tattcccttt 240  
 ttgtcgcat ttgccttcc tgtttttgct caccagaaa cgctggtgaa agtaaaagat 300  
 gctgaagatc agttgggtgc acgagtgggt tacatcgaac tggatctcaa cagcggtgaa 360

004050-5158400

atccttgaga gttttcgccc cgaagaacgt tttccaatga tgagcacttt taaagttctg	420
ctatgtggcg cggtattatc ccgtattgac gccgggcaag agcaactcgg tcgcgcgata	480
cactattctc agaatgactt ggttgagtac tcaccagtc cagaaaagca tcttacggat	540
ggcatgacag taagagaatt atgcagtgct gccataacca tgagtataaa cactcgggcc	600
aacttacttc tgacaacgat cggaggaccg aaggagctaa ccgctttttt gcacaacatg	660
ggggatcatg taactcgctt tgatcgttgg gaaccggagc tgaatgaagc cataccaaac	720
gacgagcgtg acaccacgat gcctgtagca atggcaacaa cgttcgcgaa actattaaact	780
ggcgaactac ttactctagc ttcccggcaa caattaatag actggatgga ggcgataaaa	840
gttgaggac cacttctgcg ctccggcctt ccggctggct ggtttattgc tgataaatct	900
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tcccgatcgc tagttatcta cagcaggggg agtcaggcaa ctatggatga acgaaataga	1020
cagatcgcgt agatagggtc ctactgatt aagcatttgt aactgtcaga ccaagtttac	1080
tcatatatac tttagattga tttaaaactt catttttaat ttaaaggat ctagggtgaag	1140
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tcagaccccg tagaaaagat caaaggatct tcttgagatc ctttttttct gcgcgtaatc	1260
tgctgcttgc aaacaaaaaa accaccgcta ccagcgggtg ttgttttgcc ggatcaagag	1320
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cttctagtgt agccgtagtt agggccaccac ttcaagaact ctgtagcacc gcctacatac	1440
ctgcctctgc taatcctggt accagtggtc gctgccagtg gcgataagtc gtgtcttacc	1500
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tcgtgcacac agcccagctt ggagcgaacg acctacaccg aactgagata cctacagcgt	1620
gagctatgag aaagcgccac gcttcccga gggagaaagg cggacaggtg tccggttaagc	1680
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tatagtcctg tcgggtttcg ccacctctga cttgagcgtc gatttttgtg atgctcgtca	1800
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tcagttagcg aggaagcgga agagcgccca atacgcaaac gcctctctcc cgcggttg	2040
ccgattcatt aatgcagctg gcacgacagg tttcccgact ggaaagcggg cagtgagcgc	2100
aacgcaatta atgtgagtta gctcaactcat taggcacccc aggcctttaca ctttatgctt	2160
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gaccatgatt acgccaagct tataatagaa atagtttttt gaaaggaaag cagcatgaaa	2280



attaaaaactc tggcaatcgt tgttctgtcg gctctgtccc tcagttctac agcggtctctg 2340  
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gcttcgcgag ttgatgcagg ctctgttgat caaaccgctc agttaggaca ggttcgtacc 2460  
gcatcgctgg cacaggaagg agcaaccagt tctgctgtcg gttttaacat tcagctgaat 2520  
gattgcgata ccaatgttgc atctaaagcc gctgttgccct ttttaggtac ggcgattgat 2580  
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tcatttacgg gaatgtagca cgggtgtgag tgaacgtgta ggtgtggcgt ttcacgggtg 3180  
cgcggatggt aaaaatccg atgtgcttcc cgtgggagag gggccaggga tagccacca 3240  
tattggcgta gcggtgtttg atgatgaagg aaacctcgta ccgattaatc gtccctccagc 3300  
aaactggaaa cggctttatt caggctctac ttcgctacat ttcacgcga aatatogtgc 3360  
taccgggcgt cgggttactg gcggcatcgc caatgccacg gcctggttct ctttaacct 3420  
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caatgtaagg aaatcgcagg aaataacatt ctgcttgctg gcaggtatcc tgatgttc 3540  
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gacggttaaca gagtgaatg ccggaacccg ggttcttgaa aatgcattgg tgccctccaat 4080  
gggcgaaaag acggttaaat tgccctctga tgcaggaagc aatattacct accgaacaat 4140  
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 gaaaaccctg gcgttaccga acttaatcgc cttgcagcac atcccccttt cggcagctgg 4320  
 cgtaatatgcg aagaggcccg caccgatcgc ccttcccaac agttgcgcag cctgaatggc 4380  
 gaatggcgcc tgatgcggta ttttctcctt acgcatctgt gcggtatttc acaccgcata 4440  
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 ccaacacccg ctgacgcgcc ctgacgggct tgtctgctcc cggcatccgc ttacagacaa 4560  
 gctgtgaccg tctccgggag ctgcatgtgt cagaggtttt caccgtcatc accgaaacgc 4620  
 gcg 4623

<210> 162  
 <211> 42  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Oligonucleotide

<400> 162  
 aagatcttaa gctaagcttg aattctctga cgctgattaa cc 42

<210> 163  
 <211> 41  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Oligonucleotide

<400> 163  
 acgtaaagca tttctagacc ggggatagta atcgtgctat c 41

<210> 164  
 <211> 5681  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> pFIMD

<400> 164  
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 gttaaatgta tgataataat ggtttcttag acgtcaggtg gcacttttcg gggaaatgtg 120  
 cgcggaaccc ctatttgttt atttttctaa atacattcaa atatgtatcc gtcctatgaga 180  
 caataaccct gataaatgct tcaataatat tgaaaaagga agagtatgag tattcaacat 240

tccgtgtcg	cccttattcc	cttttttgcg	goattttgcc	ttcctgtttt	tgtcaccca	300
gaaacgtg	tgaaagtaaa	agatgctgaa	gacagcttgg	gtgcacgagt	gggttacatc	360
gaactggatc	tcaacagcgg	taagatcctt	gagagttttc	gccccgaaga	acgttttcca	420
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caagagcaac	tcggtgcg	cataactat	tctcagaatg	acttggttga	gtactcacca	540
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 gtaaaaccgc caatgggtacc gagctcgaat tcaactggcg tcgtttttaca acgtcgtgac 8100  
 tgggaaaacc ctggcggttac ccaacttaat cgcottgcag cacatccccc ttctgccagc 8160  
 tggcgtaata gcgaagaggc ccgcaccgat cgcctctccc aacagttgag cagcctgaat 8220  
 ggcgaatggc gcctgatgag gtattttctc cttacgcacg tgtgcggtat ttcacaccgc 8280  
 atatggtgca ctctcagtac aatctgctct gatgccgatc agttaagcca gccccgacac 8340  
 ccgccaacac ccgctgacgc gccctgacgg gcttgtctcg tcccgcacg cgcttacaga 8400  
 caagctgtga ccgtctccgg gagctgcatg tgtcagaggt ttccaccgctc atcaccgaaa 8460  
 cgcg 8464

<210> 170  
 <211> 27  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic M2 Peptide

<400> 170  
 Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Cys  
 1 5 10 15  
 Arg Cys Asn Gly Ser Ser Asp Gly Gly Gly Cys  
 20 25

<210> 171

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<400> 172																
Met	Leu	Pro	Gly	Leu	Ala	Leu	Leu	Leu	Leu	Ala	Ala	Ala	Trp	Thr	Ala	Arg
1				5					10						15	
Ala	Leu	Glu	Val	Pro	Thr	Asp	Gly	Asn	Ala	Gly	Leu	Leu	Ala	Glu	Pro	
			20					25						30		
Gln	Ile	Ala	Met	Phe	Cys	Gly	Arg	Leu	Asn	Met	His	Met	Asn	Val	Gln	
		35					40					45				
Asn	Gly	Lys	Trp	Asp	Ser	Asp	Pro	Ser	Gly	Thr	Lys	Thr	Cys	Ile	Asp	
	50					55					60					
Thr	Lys	Glu	Gly	Ile	Leu	Gln	Tyr	Cys	Gln	Glu	Val	Tyr	Pro	Glu	Leu	
65					70					75					80	
Gln	Ile	Thr	Asn	Val	Val	Glu	Ala	Asn	Gln	Pro	Val	Thr	Ile	Gln	Asn	
				85					90					95		
Trp	Cys	Lys	Arg	Gly	Arg	Lys	Gln	Cys	Lys	Thr	His	Pro	His	Phe	Val	
		100						105					110			

Ile Pro Tyr Arg Cys Leu Val Gly Glu Phe Val Ser Asp Ala Leu Leu  
115 120 125

Val Pro Asp Lys Cys Lys Phe Leu His Gln Glu Arg Met Asp Val Cys  
130 135 140

Glu Thr His Leu His Trp His Thr Val Ala Lys Glu Thr Cys Ser Glu  
145 150 155 160

Lys Ser Thr Asn Leu His Asp Tyr Gly Met Leu Leu Pro Cys Gly Ile  
165 170 175

Asp Lys Phe Arg Gly Val Glu Phe Val Cys Cys Pro Leu Ala Glu Glu  
180 185 190

Ser Asp Asn Val Asp Ser Ala Asp Ala Glu Glu Asp Asp Ser Asp Val  
195 200 205

Trp Trp Gly Gly Ala Asp Thr Asp Tyr Ala Asp Gly Ser Glu Asp Lys  
210 215 220

Val Val Glu Val Ala Glu Glu Glu Glu Val Ala Glu Val Glu Glu Glu  
225 230 235 240

Glu Ala Asp Asp Asp Glu Asp Asp Glu Asp Gly Asp Glu Val Glu Glu  
245 250 255

Glu Ala Glu Glu Pro Tyr Glu Glu Ala Thr Glu Arg Thr Thr Ser Ile  
260 265 270

Ala Thr Thr Thr Thr Thr Thr Glu Ser Val Glu Glu Val Val Arg  
275 280 285

Glu Val Cys Ser Glu Gln Ala Glu Thr Gly Pro Cys Arg Ala Met Ile  
290 295 300

Ser Arg Trp Tyr Phe Asp Val Thr Glu Gly Lys Cys Ala Pro Phe Phe  
305 310 315 320

Tyr Gly Gly Cys Gly Gly Asn Arg Asn Asn Phe Asp Thr Glu Glu Tyr  
325 330 335

Cys Met Ala Val Cys Gly Ser Ala Met Ser Gln Ser Leu Leu Lys Thr  
340 345 350

Thr Gln Glu Pro Leu Ala Arg Asp Pro Val Lys Leu Pro Thr Thr Ala  
355 360 365

Ala Ser Thr Pro Asp Ala Val Asp Lys Tyr Leu Glu Thr Pro Gly Asp  
370 375 380

Glu Asn Glu His Ala His Phe Gln Lys Ala Lys Glu Arg Leu Glu Ala  
385 390 395 400

Lys His Arg Glu Arg Met Ser Gln Val Met Arg Glu Trp Glu Glu Ala  
405 410 415

Glu Arg Gln Ala Lys Asn Leu Pro Lys Ala Asp Lys Lys Ala Val Ile  
420 425 430

Gln His Phe Gln Glu Lys Val Glu Ser Leu Glu Gln Glu Ala Ala Asn  
435 440 445



&lt;211&gt; 82

&lt;212&gt; PRT

<213> Homo Sapiens

<400> 173

Gly Ser Gly Leu Thr Asn Ile Lys Thr Glu Glu Ile Ser Glu Val Lys  
1 5 10 15

Met Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln  
20 25 30

Lys Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile  
35 40 45

Ile Gly Leu Met Val Gly Gly Val Val Ile Ala Thr Val Ile Ile Ile  
50 55 60

Thr Leu Val Met Leu Lys Lys Gln Tyr Thr Ser Asn His His Gly Val  
65 70 75 80

Val Glu

<210> 174

&lt;211&gt; 42

&lt;212&gt; PRT

<213> Unknown

 $\langle 220 \rangle$ 

<223> Amyloid Beta Peptide

&lt;400&gt; 174

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys  
1 5 10 15

Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile  
20 25 30

Gly Leu Met Val Gly Gly Val Val Ile Ala  
35 40

&lt;210&gt; 175

&lt;211&gt; 12

&lt;212&gt; PRT

<213> Artificial Sequence

<220>

<223> p33 peptide

<400> 175

Cys Gly Gly Lys Ala Val Tyr Asn Phe Ala Thr Met  
1 5 10

<210> 176

<211> 37

<212> PRT

<213> Artificial Sequence

<220>

<223> DP178c peptide

<400> 176

Cys Tyr Thr Ser Leu Ile His Ser Leu Ile Glu Glu Ser Gln Asn Gln  
1 5 10 15  
Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser  
20 25 30  
Leu Trp Asn Trp Phe  
35

<210> 177

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> c-terminal linker

<400> 177

Gly Ser Gly Gly Cys Gly  
1 5

<210> 178

<211> 65

<212> PRT

<213> Artificial Sequence

<220>

<223> GRA2

<400> 178

Lys Glu Ala Ala Gly Arg Gly Met Val Thr Val Gly Lys Lys Leu Ala  
1 5 10 15

Asn Val Glu Ser Asp Arg Ser Thr Thr Thr Thr Gln Ala Pro Asp Ser  
20 25 30

Pro Asn Gly Leu Ala Glu Thr Glu Val Pro Val Glu Pro Gln Gln Arg  
35 40 45

Ala Ala His Val Pro Val Pro Asp Phe Ser Gln Gly Ser Gly Gly Cys  
50 55 60

Gly  
65

<210> 179

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> D2 peptide

<400> 179

Cys Gly Gly Thr Ser Asn Gly Ser Asn Pro Ser Thr Ser Tyr Gly Phe  
1 5 10 15

Ala Asn

<210> 180

<211> 18

<212> PRT

<213> Artificial Sequence



<220>

<223> B2 peptide

<400> 180

Cys Gly Gly Asp Ile Ser Asn Gly Tyr Gly Ala Ser Tyr Gly Asp Asn  
1 5 10 15

Asp Ile

<210> 181

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> muTNFa peptide

<400> 181

Cys Gly Gly Val Glu Glu Gln Leu Glu Trp Leu Ser Gln Arg  
1 5 10

<210> 182

<211> 22

<212> PRT

<213> Artificial Sequence

<220>

<223> TNFa II (3'-TNFa II)

<400> 182

Ser Ser Gln Asn Ser Ser Asp Lys Pro Val Ala His Val Val Ala Asn  
1 5 10 15

His Gly Val Gly Gly Cys  
20

<210> 183

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> TNFa II (5' TNFa II)

<400> 183

Cys Ser Ser Gln Asn Ser Ser Asp Lys Pro Val Ala His Val Val Ala  
1 5 10 15  
Asn His Gly Val  
20

<210> 184

<211> 182

<212> PRT

<213> Escherichia coli

<400> 184

Met Lys Ile Lys Thr Leu Ala Ile Val Val Leu Ser Ala Leu Ser Leu  
1 5 10 15  
Ser Ser Thr Ala Ala Leu Ala Ala Ala Thr Thr Val Asn Gly Gly Thr  
20 25 30  
Val His Phe Lys Gly Glu Val Val Asn Ala Ala Cys Ala Val Asp Ala  
35 40 45  
Gly Ser Val Asp Gln Thr Val Gln Leu Gly Gln Val Arg Thr Ala Ser  
50 55 60  
Leu Ala Gln Glu Gly Ala Thr Ser Ser Ala Val Gly Phe Asn Ile Gln  
65 70 75 80  
Leu Asn Asp Cys Asp Thr Asn Val Ala Ser Lys Ala Ala Val Ala Phe  
85 90 95  
Leu Gly Thr Ala Ile Asp Ala Gly His Thr Asn Val Leu Ala Leu Gln  
100 105 110  
Ser Ser Ala Ala Gly Ser Ala Thr Asn Val Gly Val Gln Ile Leu Asp  
115 120 125  
Arg Thr Gly Ala Ala Leu Thr Leu Asp Gly Ala Thr Phe Ser Ser Glu  
130 135 140  
Thr Thr Leu Asn Asn Gly Thr Asn Thr Ile Pro Phe Gln Ala Arg Tyr  
145 150 155 160

123456789101112131415161718192021222324252627282930313233343536373839404142434445464748495051525354555657585960616263646566676869707172737475767778798081828384858687888990919293949596979899000102103104105106107108109110111112113114115116117118119120121122123124125126127128129130131132133134135136137138139140141142143144145146147148149150151152153154155156157158159160161162163164165166167168169170171172173174175176177178179180181182183184185186187188189190191192193194195196197198199200

Phe Ala Thr Gly Ala Ala Thr Pro Gly Ala Ala Asn Ala Asp Ala Thr  
165 170 175

Phe Lys Val Gln Tyr Gln  
180

<210> 185

<211> 152

<212> PRT

<213> Hepatitis B virus

<400> 185

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Ile Glu Ser Pro Glu His Cys  
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Gly Gly  
65 70 75 80

Lys Gly Gly Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met  
85 90 95

Gly Leu Lys Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr  
100 105 110

Phe Gly Arg Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp  
115 120 125

Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser  
130 135 140

Thr Leu Pro Glu Thr Thr Val Val  
145 150

<210> 186

<211> 152

<212> PRT

<213> Hepatitis B virus

<400> 186

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15

Ser	Phe	Leu	Pro 20	Ser	Asp	Phe	Phe	Pro 25	Ser	Val	Arg	Asp	Leu 30	Leu	Asp
Thr	Ala	Ser 35	Ala	Leu	Tyr	Arg	Glu 40	Ala	Leu	Glu	Ser	Pro 45	Glu	His	Ser
Ser	Pro 50	His	His	Thr	Ala	Leu 55	Arg	Gln	Ala	Ile	Leu 60	Cys	Trp	Gly	Glu
Leu 65	Met	Thr	Leu	Ala	Thr 70	Trp	Val	Gly	Thr	Asn 75	Leu	Glu	Asp	Gly	Gly 80
Lys	Gly	Gly	Ser	Arg 85	Asp	Leu	Val	Val 90	Ser	Tyr	Val	Asn	Thr	Asn 95	Met
Gly	Leu	Lys	Ile 100	Arg	Gln	Leu	Leu	Trp 105	Phe	His	Ile	Ser	Ser 110	Leu	Thr
Phe	Gly	Arg 115	Glu	Thr	Val	Leu	Glu 120	Tyr	Leu	Val	Ser	Phe 125	Gly	Val	Trp
Ile	Arg 130	Thr	Pro	Pro	Ala	Tyr 135	Arg	Pro	Pro	Asn	Ala 140	Pro	Ile	Leu	Ser
Thr 145	Leu	Pro	Glu	Thr	Thr 150	Val	Val								